



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JAN 07 2013

Lt. Colonel Edward P. Chamberlayne
District Engineer
Attn: Mr. Stephen Brumagin
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Chamberlayne:

This letter is in response to your request for comments on the above referenced joint public notice. The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The U.S. Environmental Protection Agency, Region 4, has reviewed the applicant's responses to our previous comment letters and we continue to have concerns about the proposed mitigation plan. As background, our concerns were previously documented in letters dated March 28, 2011, and April 28, 2011.

The applicant's plan for mitigation consists of buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites. The applicant's permittee-responsible compensatory mitigation plan for the 4,643 linear feet of stream impacts is not finished or available for review at this time and the EPA will comment on that portion of the plan when it is received.

The other permittee-responsible wetland mitigation proposed by the applicant is referred to as the Joiner Bay Wetland Mitigation Site. The Joiner Bay Mitigation is not on site, but is within the same 8 digit HUC as a majority of the impacts. The applicant proposes to restore 597.1 acres of wetland on the site. The plans will include 172.7 acres of wetland reestablishment, 424.4 acres of wetland rehabilitation, and 375.9 acres of buffer enhancement which will generate 2,399.9 wetland credits based on the applicant's use of the U. S. Army Corps of Engineers, Charleston District Standard Operating Procedure (SOP) "Guidelines for Preparing a Compensatory Mitigation Plan" October 7, 2010. The applicant's restoration plan includes road removal and plugging ditches to restore hydrology along with timber harvest and prescribed burning to restore native vegetation.

The EPA has concerns with the credit calculations the applicant has made. First, the applicant calculated a temporal loss factor of 5-10 years. The communities they are proposing to reestablish are forest communities which will not fully mature within that time frame. Accordingly, the EPA recommends that the maximum temporal loss factor of over 20 years be used. The applicant also considers all the

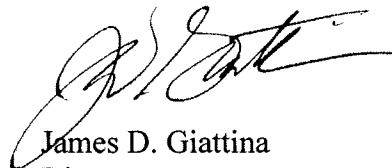
restoration as “in kind” mitigation. However, the majority of the communities proposed to be reestablished are pine savannah and streamhead pocosin, while the majority of the impacts are to bottomland hardwoods and wooded swamp. The EPA recommends that the “out of kind” factor in the SOP be applied to all acreage which is not categorized as the same type as impact sites. The applicant also considered all restoration within the same 8-digit Hydrologic Unit Code (HUC) as impact sites, but 26 percent of the impacts are in different HUCs than the proposed mitigation. This should be reflected in the credit calculations.

The applicant’s plan also relies heavily on prescribed burning to reestablish the desired vegetation community in the restoration areas of the site. However, the applicant’s proposed success criteria do not address how successful this restoration method will be and what criteria they will use to measure success. The EPA’s detailed recommendation for success criteria has been enclosed to this letter (Enclosure A) and we recommend the applicant consider this or other similar approaches.

The EPA also has concerns with the long term management associated with the proposed mitigation required to maintain a pine wet flatwoods community. We request a detailed prescribed burning plan including timing and intensities of burns, the parties that will be responsible for burning the property in perpetuity, and adaptive management plans in case burning is not possible during some years. Further, we request details of long-term financial assurances that will provide moneys for burning and other maintenance in perpetuity.

Based on the above observations, the EPA has determined that the project, as currently proposed, does not have an adequate compensatory mitigation plan and therefore is inconsistent with the Section 404(b)(1) Guidelines and the 2008 mitigation rule. Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, (Laycock.Kelly@epa.gov or 404-562-9132) or Mr. Tony Able, Wetlands Regulatory Section Chief (able.tony@epa.gov or 404-562-9273).

Sincerely,



James D. Giattina
Director
Water Protection Division

Enclosure

cc: Mr. Stephen Brumagin, Mr. Travis Hughes
U.S. Army Corps of Engineers

Mr. Mark Leao
U.S. Fish and Wildlife Service

Mr. Mark Giffin, Mr. Chuck Hightower
SC Department of Health & Environmental Control

Ms. Pace Wilber
National Marine Fisheries Service

Ms. Susan Davis, Ms. Vivianne Vejdani
South Carolina Department of Natural Resources

Enclosure A

I-73 SAC 2008-1333-DIS 3RD Recommended Success Criteria for Vegetation

Wetlands Regulatory Section
U.S. Environmental Protection Agency, Region 4
12-17-2012

We recommend the applicant use an approach that has been formulated by the Alabama-Mississippi Mitigation Banking Review Team for Wet Pine Flats. This team suggests using the Functional Capacity Index of the Plant community (FCIplant) derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M. M. (2002) "A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains."

Assessment of this function reflects the ability of a Wetland Assessment Area (WAA) to maintain a characteristic plant community composition and diversity. This is called the Functional Capacity Index or FCI. The Functional Capacity Index of the Plant community (FCIplant) is the average of the relative groundcover, subcanopy and pine composition as shown in the equation below. The Groundcover is the maximum of the herbaceous (Herb), native bunch grass (Nbg), or sedge (Sedges) scores. The wetland assessment area is an area of wetland within a bank that is relatively homogeneous with respect to the site-specific criteria used to assess wetland functions (i.e. hydrologic regime, vegetation structure, topography, soils, successional stage, etc.). The presence of invasive and exotic species (Exotics) reduces the groundcover functional capacity index as the aerial coverage of exotic species increases. Elimination of invasive species is preferred, however, less than 1% aerial coverage of exotic species is not reflected in the functional capacity index as long as control measures continue.

$$\text{FCIplant} = (\text{Groundcover} + \text{Subcanopy} + \text{Pines}) \div 3$$

Where;

$$\text{Groundcover} = \text{Exotics} \times \left[\text{MAX} \left(\text{Herb}, \text{Nbg}, \sqrt{\left(\text{Cypress} \times (\text{Sedges} + \text{Subc}) / 2 \right)} \right) \right]$$

The site-scale variables are assessed at one (1) fixed location and one (1) location chosen at random within each wetland assessment area (WAA) or 100ha (247 acres). Random monitoring plots should be located using a grid system and random number table. Monitoring will be assessed in four (4) nested plots at each location. A permanent pole placed vertically in the ground to mark the center of the nested plots should mark the center of the nested monitoring points; 1m² plot, 2m radius, 10m radius, and 100m radius. The center of the monitoring plots should be permanently marked, preferably with a metal pipe or a steel fence post.

Herb = 1m² plot: 1 point for each species below,
 2m radius: 0.5 points for each additional species
 Divide the mean herbaceous indicator score of each WAA by 8.0; for Cypress/Pine
 Savanna (if Cypress present) divide the mean indicator score by 7.0.

<i>Aletris spp.</i>	<i>Aristida spp.</i>	<i>Balduina spp.</i>	<i>Biglowia nudata</i>	<i>Carphephorus spp.</i>
<i>Chaptalia tomentosa</i>	<i>Coreopsis spp.</i>	<i>Ctenium aromaticum</i>	<i>Dichromena spp.</i>	<i>Erigeron vernus</i>
<i>Eriocaulon spp.</i>	<i>Erygium intergrifolium</i>	<i>Eupatroium leucolepis</i>	<i>Helianthus spp.</i>	<i>Lycopodium spp.</i>
<i>Muhlenbergia expansa</i>	<i>Rhexia spp.</i>	<i>Sarracenia spp.</i>	<i>Schizachyrium scoparium</i>	<i>Xyris spp.</i>

- Nbg = Native Bunch Grasses - 2m radius: Combined % cover area of the following; *Ctenium* spp., *Muhlenbergia* spp., *Aristida* spp., *Sporobolus* spp., *Schizachyrium* spp.
Divide cover by 0.50
Average scores by WAA
- Sedges = 2m radius: Combined % cover area of the following; *Carex* spp., *Sclaria* spp., *Rynchospora* spp.
Divide by 0.50
Average scores by WAA
- Cypress = Stems per hectare (2.47 acres). See alternative density calculation strategy below.*
Determine for density of pond cypress the following class sizes; (1)sapling >1m tall and less than 7.5 cm dbh (3 inches), $x = \text{density}/250$ (if the resulting score is >1.0, reduce to 1.0), (2) midcanopy > 1 m tall and 7.5-15 cm (3-6 inches) dbh, $y = \text{density}/50$ (if the resulting score is >1.0, reduce to 1.0), (3) canopy >15cm (6 inches) dbh, $z = \text{density}/100$ (if the resulting score is >1.0, reduce to 1.0). Cypress score = $(x + y + z)/3$.
Average scores by WAA
- Pines = 10m radius: Measure the basal area of all pine species > 1m high. Score $\geq 0 \leq 6.25$ sq.ft = 1.0, 6.25-12.0 = 0.5, $\geq 12.0 = 0$ (Lewis and Teaford, 1995)
- Subc = Subcanopy Vegetation - 10m radius: Count all stems at one meter in height even if they originate from same plant. If Subc < 200, then Subc = 1.0, If Subc is 201-300, then Subc = 0.5, If Subc > 300, then Subc = 0 (Modified HGM)
- Exotics = 100m radius: Estimate % aerial coverage of all invasive species (i.e. *Sapium Sebiferum*, *Panicum Repens*, *Imperata Cylindrica*, etc.) If Exotics < 1% then Exotics = 1.0, If >1% then Exotics = $(1.0 - (\% \text{ coverage})/10)$.

*For Cypress density, another way to determine density is determine the distance to the closest individual in each size class from randomly selected points in the WAA. To do this, at each center point, measure the distance in meters from the center point to the nearest sapling, midcanopy, and canopy stem of pond cypress. (Sample at least three points, more is better). Determine the average distance to individuals in each of three size classes. Calculate density as follows: $\text{Density} = 10,000/[2 \times (\text{average distance})^2]$.

We recommend that the applicant apply this method to a reference area and to the enhancement area for baseline data. We believe that the increase of species richness expected by the applicant, along with hydrological monitoring by establishing wells will be able to show if function lift occurs.